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Report on Expose Your Toes

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Public Health 9802

Major project: Report on Expose Your Toes

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Contents

Abstract

This paper summarizes the activity involved in a major public health care project – the development of the website: www.exposeyourtoes.ca. The purpose of exposeyourtoes.ca is to advise interested individuals on the safe and proper care of one's feet.

Web pages and bookmarks are provided in the appendixes (Appendix A,B). Pertinent background information for this topic is included in the Rationale section. The Activity section details development and implementation of the web site. A brief statistical analysis is provided. Public reception/reaction to the site is discussed. A detailed literature review lends credibility to the importance of this topic. The paper concludes with an Opinion from the writer.

Rationale

The Lalonde Report (1974) changed the focus of health care in Canada. Emphasis moved from tertiary care to health promotion and disease prevention. Society is now informed on a regular basis via television, radio and in print about the importance of a healthy lifestyle. Physicians, with their longstanding role as authority figures within the health care system, have the opportunity and responsibility to enhance this new outlook of health promotion with their patients. Opportunity to do so should occur during the patient's annual physical examination.

Unfortunately, examination of the feet is not always included in the physical examination. Often, patients do not even remove their shoes or socks; the doctor never sees their feet.Yet, "...evidence obtained from cross-sectional studies of foot conditions suggest that in excess of 80% of the population have a foot problem of one kind or another" (Garrow, A., Silman, A., and Macfarlane, G., 2004, p.380). Attention to one's feet is not a high priority in society. We take our feet for granted until a problem arises even though "...the human foot is exposed to significant daily trauma, use, and abuse, perhaps exceeded only by the heart" (Helfand, A., 1983, p. 126). Bunions, hammer toes, ingrown toenails, fungus, corns and callus are a few of the conditions that can be present. Left unattended, they can develop complications that require much more intrusive, expensive care. More alarmingly still,"...peripheral neuropathy and vascular disease are present in more than 10% of people at the time of diagnosis of type 2 diabetes" (Boulton, A.,Vileikyte, L., Ragnarson-Tennval, G., Apelqvist, J., 2005, p.1720). The invisible consequences of poorly managed diabetes are many. Neuropathic changes in the lower legs and feet are life altering and costly to the individual and society. The number of persons diagnosed with type 2 diabetes is forecast to explode over the next decade. World wide, the number of persons suffering from diabetes is at epidemic proportions. Every year, over 3.8 million people

die from diabetes related causes. This silent epidemic claims as many lives annually as HIV/AIDS (Unite for diabetes, 2006).

This writer's experience as a foot care provider in her community over the past ten years has exposed a great need for clear information about all areas of foot care. Proper care of the feet is important to all people, especially those diagnosed with diabetes, elderly members of society and their carergivers This writer has come into contact with many elderly and mentally ill individuals who suffer needlessly from debilitating foot problems.

This project takes an 'upstream' approach to care of the feet, providing basic information on proper preventive care. It encourages participants to seek guidance from their health care provider. Awareness of how to properly care for one's feet empowers the individual. Regular foot inspection should prevent the dangerous consequences that result from ignorance and disregard for one's feet.

Web site presentation was the format chosen for this major project as the writer felt more people could be reached with this communication tool. This writer's professional membership in the DES (Diabetic Educator Section) of the Canadian Diabetes Association, the Gerontological Nursing Association, and the Diabetes Interest Group of the RNAO (Registered Nurses Association of Ontario), as well as her continuous education in the foot care field, enhances her ability to provide information that is accurate and current.

Web Page Content

Information is provided under the following headings:

-inspecting the feet

-should you cut your toenails?

-paying for footcare-tools to use

-how to cut toenails

-special nails: thick nails; fungal nails; ingrown nails

-skin concerns: bunion formation; corn and callus; athlete's foot; excessive perspiration

-shoes and socks

-the diabetic connect; how to test for loss of sensation

-footcare tips

-questions and comments

-links

How to properly cut toenails is demonstrated using two tools. How to minimize ingrown toenails, corns and callus formation, dry, cracked heels and fungal conditions of the foot are discussed with simple, practical solutions. The link between diabetes and the feet is explained. How to inspect the foot and check for sensation is demonstrated. Information is provided with regard to the potentially debilitating effects of diabetes on the feet. Proper foot wear is illustrated. The 'Links page' is available to those seeking more in-depth information on related topics. The 'Question and Comment page' allows for fast communication with the writer.

Activity

Footcare providers were consulted regarding content of the website. A professional web developer was hired to produce and manage the web site. Exposeyourtoes.ca was advertised with 'bookmarks' which included a monofilament to use when testing for sensation (Appendix B). These bookmarks were sent to doctor's offices, health care clinics and shoe stores as well as being distributed by hand to health care workers in the Ottawa area.

The site was launched in mid-August, 2007. Feedback via word of mouth was positive and encouraging. Professionals in the health care field voiced approval for the site and information it provided. Statistical analysis available for the period from August 2007 to May 2008 is included (Appendix C). Most visits to the website occurred during the month of October, with 144 visits, involving 1050 hits. Currently, the site averages 55 hits per month and has done so since January. Actual feedback from the site via the e-mail link was poor. Less than 10 questions were received regarding nail care. Student nurses requested permission to download the site. The writer was contacted by The Friendship Support Group of the Schizophrenia Society of Ottawa, requesting a talk based on the web site content. Many members of the group have diabetes. Information was presented on Feb. 20th and was well received. Future plans include advertising the site in health related publications and offering information sessions to interested groups. Possibly including a telephone number or mailing address for questions may be useful. Internet presentation limits the audience to persons comfortable using this tool. Many elderly persons are not at home with this technology, thus would not be exposed to the information. Another form of communication may be more effective. As well, the topic of footcare, although basic to one's wellbeing, is not a sought after topic. The lack of e-mail response confirms the lack of interest in this important area of health care.

Literature Review

This literature review reveals findings from studies that indicate a large number of individuals are afflicted with foot concerns. Diabetes related complications in relation to the foot are also common. Various approaches to enhancing foot health through patient education, awareness and empowerment are outlined.

Evidence to support the numerous foot related concerns are numerous, from many countries around the world. Researchers with the Cheshire Foot Pain and Disability Survey found that 63% of participants (4500) reported some kind of problem with their feet – nail concerns, corn and callus formation, bunions and swollen feet. As well, 80% of those reporting foot problems had trouble walking which would have a direct impact on their independence (Blake, 2005). Springett, Whiting and Marriott (2003) report "a minimum of 18% of a working population appear to have suffered at some stage with plantar callus"(Springett, Whiting, & Marriott, 2003, p.6). An Australian study involving 1000 elderly participants found that one in three reported problems of the foot and or leg and that "…these problems have a significant impact on the ability to perform functional tasks integral to independent living" (Barr, Browning, Lord, Menz & Kendig, 2005,p.921). Foot pain and foot deformity are common concerns for persons suffering from rheumatic diseases (Williams & Bowden, 2004).

A Canadian study looking at the prevalence of fungal infections in the toenails of 15,000 patients found that 6.5% of Canadians have onychomycosis (Gupta, Jain, Cynde, MacDonald, Cooper & Summerbell, 2000). Of the thirty-three million Americans estimated to have a fungal toenail infection, only six to seven million have been identified. Over half of those identified also have a tinia pedis infection of the skin around the nails and toes (Blake, 2005). Often these infections occur in persons with additional health concerns. The elderly person with a thickened,

fungal nail may not be able to walk due to the pressure caused by the nail when shoes are worn, thereby impacting mobility and independence. The elderly diabetic is at great risk for complications from any minor foot ailment. The elderly person with rheumatic disease and diabetes is further challenged. Often elderly persons have both of these chronic conditions and may have additional health concerns such as poor eyesight, obesity and hypertension.

In the United States it is estimated that 8% of persons over the age of 20 and 20% of persons over the age of 65 have diabetes and that 1/3rd of them are undiagnosed (Wilder, Majumda, Klarenbach & Jacobs, 2005). The danger of preventable complications developing such as a foot ulcer, is a major health concern. The majority of foot ulcers are neuropathic and highly preventable. Yet, diabetic foot ulcers remain a common, reoccurring condition. "The lifetime risk of a person with diabetes developing a foot ulcer could be as high as 25%...with recurring rates greater than 50% after three years"(Boulton et. Al., 2005, p. 1722).

Unhealed ulcers can lead to lower limb amputations and "these patients have a high mortality following amputation, ranging from 39-80% at 5 years"(Moulik, Mtonga, & Gill, 2003, p.493). In their paper detailing the economic burden of diabetes in the United States, Saar, Lee and Berlet (2005) state that 15% of diabetics will need a lower extremity amputation in their lifetime, with a 50% chance of a 2nd amputation within three years. The cost for each amputation is estimated at $60,000.00 (Saar, Bee, Berlet, 2005). These are only the direct costs. There are the indirect costs that will affect the patient, their family and community for years to come. Timothy Kalla, (2007) reports that "...every 30 seconds, or 2880 times per day, worldwide, a lower limb or leg is amputated due to diabetes related complications"(Kalla, 2007, p.8).

In October, 1989, in St. Vincent Italy, the World Health Organization met with representatives from European countries, diabetic experts and the International Diabetes

Federation to discuss the growing problem of diabetes. One of the goals agreed upon was to reduce by one half the rate of limb amputations from diabetic gangrene (St. Vincent Declaration, Appendix D, 1989).

Diabetes is now considered a global epidemic with 240 million people affected worldwide. This number will increase to over 380 million by 2025. Type two diabetes accounts for 90–95% of all cases. Each year there are over one million diabetic related foot/leg amputations. Almost four million people die annually from diabetes related causes - one death every ten seconds (International Diabetes Federation, 2007).

Sadly, as Andrew Boulton states, "...at least one in five diabetic foot ulcers result from some form of professional mismanagement" (Boulton, 1995, p.186). Persons with diabetes who do not know that neuropathy can present as a complete loss of sensation in the foot are living with a false sense of security. Such persons may walk around for days with a tack imbedded in their shoe, penetrating the sole of their foot. When the injury is finally realized it may have developed into a stage four ulcer. Yet, "people at greatest risk of ulceration can easily be identified by careful clinical examination of the feet, education and frequent follow-up..."(Boulton et.al., 2005, p.1720). An Italian study involving 2962 patients with diabetes found that 28% of the patients had not received any information on foot care from their doctor. As well, some did not understand the meaning of the term foot care. Only half stated they had had their feet examined within the last year (DeBerardis, Pellegrini, Fransiosi, Belgfiglio, DiNardo, Greenfield et al, 2005). In Britain, 365 diabetic patients responded to a self administered postal questionnaire that detailed knowledge and practice of proper foot care. The average score was six out of eleven. Areas of poor knowledge included the impact of smoking on circulation, not having feet

measured when purchasing footwear, decreased sensation of the feet and ulcer formation (Pollock, Unwin & Connolly, 2004).

Statistics Canada table 'Persons with diabetes by age and sex' (Statistics Canada 2005, Appendix E), illustrates that those over age 65 are the fastest growing members of the population diagnosed with diabetes. The publication Diabetes: Strategies for Prevention (D'Cunha, 1999) contains data for 1996. That year there were 628,000 persons in Ontario diagnosed with diabetes – 6% of the population. Furthermore, every 20 minutes someone is diagnosed with diabetes. "Currently, few health programs educate the public about preventing diabetes. The ideal public health approach to diabetes would emphasize prevention and education for the whole community" (D'Cunha, 1999, p.4).

The Ontario Health Technology Advisory Committee issued a report on hyperbaric oxygen therapy for non-healing diabetic ulcers in August 2005. Their report compares the cost of treatment of ulcers with hyperbaric oxygen therapy to the cost of amputation. They base their estimates on 2003 Ontario data indicating there were 357 major amputations at a cost of $60,000/amputation. Cost for oxygen therapy treatment is $6,200/ulcer (OHTAC Recommendations, 2005, p.4). Oxygen therapy would save the health care system millions of dollars. The report recommends that "efforts be made to prevent chronic diabetic foot ulcers through diabetic care and education; that existing Ontario clinical guidelines on the prevention and management of diabetic foot ulcers be disseminated.." (OHTCA Recommendations, 2005, p.4). Another report by the Diabetes Task Force (2004), states that complications can be reduced by having regular foot care. In 1999 there were over 900 Ontarians who had a major amputation while over 500 lost part of their foot to amputation. "The risk of such events can be reduced substantially with effective foot care.." (Diabetes Task Force, 2004, p..x).

In many older adults a foot ulcer is associated with immobility, possible gangrene and amputation. This depressing picture may color the patient's view of treatment and recovery. What is the best way to educate the adult with diabetes in the proper care of their feet? Different countries around the world are attempting to address this area of need. A multidisciplinary diabetic foot clinic is one approach that has met with varying degrees of success. "Studies in North America and Europe have shown that with regular treatment from a Podiatrist/Chiropodist many elderly patients remain ambulatory, active and in their own homes for a longer time period" (Podiatry in Canada, 2007, p.2).

Dr. Paul Brand, world famous orthopaedic specialist and leprosy surgeon was asked at an American Department of Health conference for recommendations on reducing amputations in diabetes "..his key recommendation was a national campaign to encourage healthcare professionals to remove patients' shoes and socks and examine the feet"(Boulton et. Al., 2005, p. 1723). The American Podiatric Medical Association did as Paul Brand recommended by launching their 'Knock Your Socks Off!' campaign. Now in its' third year this program is dedicated to encouraging diabetics to remove their socks and have their doctor examine their feet. In addition. their web site carries information on many aspects of foot care (American Podiatric Medical Association, 2005). The LEAP (Lower Extremity Amputation Prevention Program) is run by the Bureau of Primary Health Care, a branch of the United States Department of Health and Human Services. The program revolves around five basic activities: annual foot screening, patient education, self inspection, proper footwear and management of skin and nail problems. This excellent program is clearly outlined on the internet. Training in use of the 10 gram monofilament for testing sensitivity of the foot is demonstrated via video. A demonstration has been included on the website exposeyourtoes.ca.

A self management program, FOOTSTEPS (the Foot Self-Treatment Evaluation Project) was implemented in England in an attempt to ease the demand on podiatry services by the elderly. The program involved persons over 60 who required assistance with routine foot care. If a participant had vision restrictions or was unable to reach their feet or grip the scissors, they were paired with a volunteer form the community who was trained in caring for that persons' feet. The volunteer then visited them at home and provided the service. At the six month follow-up there was no difference between the treatment and control groups. By empowering the participants to take control of their foot care the researchers have "..provided evidence that the medical management of routine foot care at the primary level can be reoriented towards a system of patient directed decision making concerning treatment, timing and options without compromising care" (Waxman, Woodburn, Powell, Woodburn, Blackburn & Helliwell,2003, p.1096).

Interactive computer programs have been tried as a learning tool in various settings. Patients completed an interactive computer program: the Diabetes Priority Program (Glasgow, Nutting, King, Nelson, Cutter, Gaglio et. Al., 2004) when visiting their doctor in this American study. Details such as remembering when they last had their feet and eyes examined were entered as well as blood glucose, weight, exercise and diet details. Based on the input, the computer generated a self management action plan for the patient. The patient met with the doctor to discuss the plan as well as a staff member who had been trained as the case manager. Researchers found that patients were very willing to participate and follow recommended activities, especially in regard to foot care examination and nutritional counselling (Glasgow et. Al, 2004). Violet Technology (Ma, Warren, Phillips & Stane, 2005) is a much more involved computer based program set up to provide information to patients and their caregivers. This

interactive Australian system is extremely complex, containing large amounts of patient information. Computer technology was also used in the development of a Two Minute Diabetes Foot Examination CD by the Majic Valley Diabetes Coalition of South Central Idaho (Beem, Machala, Holman, Wraalstad, & Bybee, 2004). Local care providers were instructed via the CD in proper foot care. This information had a positive impact on the number of diabetics who subsequently had their feet examined.

Numerous approaches to foot care have been implemented in many countries around the globe as evidenced above, with varying degrees of success.

Opinion

Members of the public need clear information about proper care of their feet. Few members of the public are aware of the link between diabetes and the feet and the damage diabetes can cause their feet. Most lower limb amputations begin with an ulcer on the foot.

Diabetic organizations must put more effort into reaching all members of the population with regard to the link between diabetes and their feet. People must know what to look for.

The signs and symptoms of diabetic neuropathy, both autonomic and peripheral and the consequences associated with both should be common knowledge among public health care providers. (Appendix F).

The Ontario government should cover the cost of regular foot care for all members of society who are unable to provide care for themselves (elderly, physically, mentally ill).

The government should fund training sessions for caregivers. This upstream approach would reduce the burden on the health care system.

The Canadian Diabetes Association must provide more information to the public with regard to healthy preventive footcare practices. Testing for neuropathy is extremely easy and low cost.

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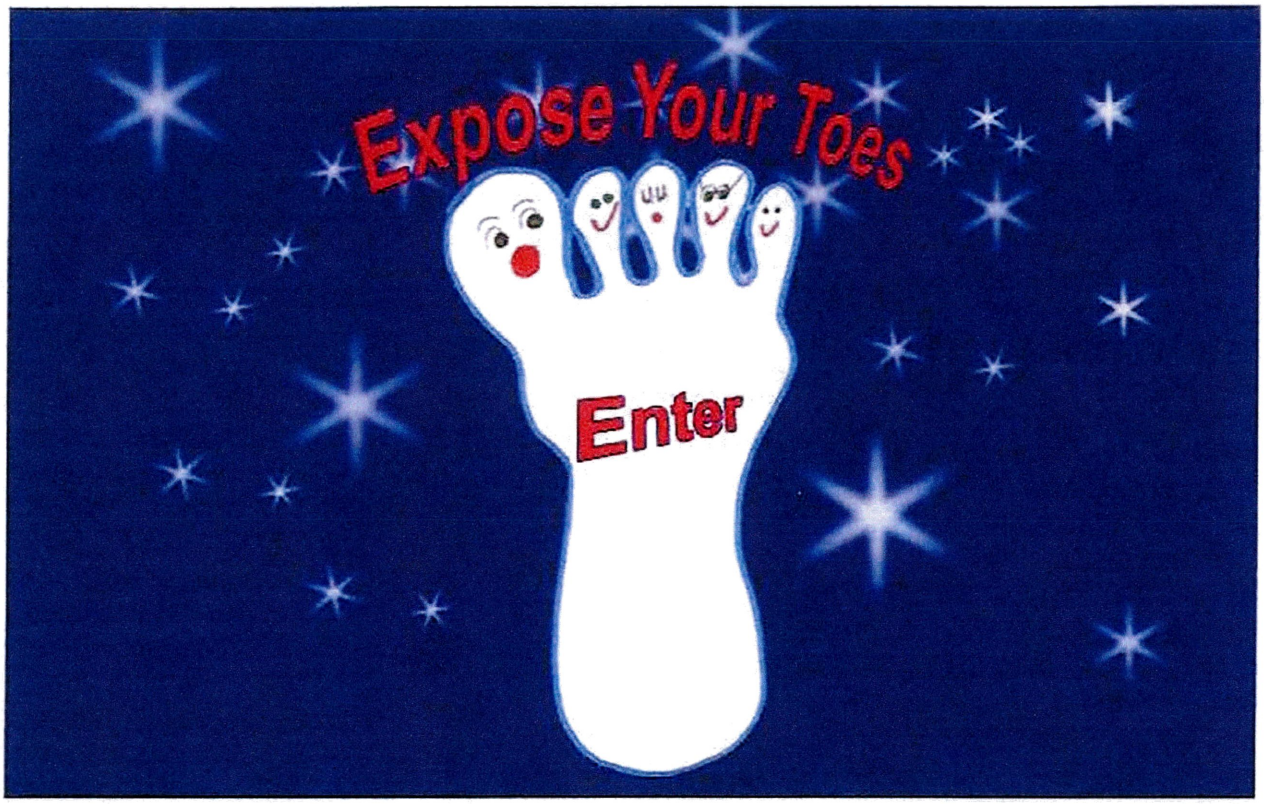
Appendix 'A'

Website: www.exposeyourtoes.ca

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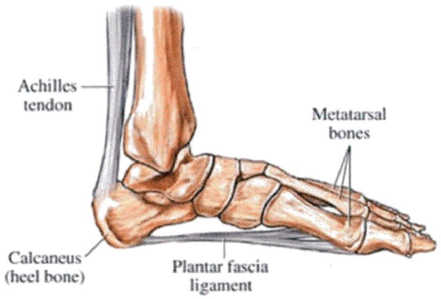


Welcome!

Our feet are invaluable. They carry us around all day. They provide us with our independence. Yet they are taken for granted, often neglected. As a Foot Care Nurse working in community and hospital settings I see the need for instructions about how to care for our feet in order to prevent common problems from occurring. Preventive care is the most sensible approach to care of the feet. Members of the 'sandwich generation' may benefit from this information. Caring for our parent's feet is of great importance.

Information concerning our feet and how to care for them is plentiful. This site attempts to filter through the vast amount of information and communicate the findings in a sensible, easy to understand manner. This site is being launched as part of my Master in Public Health degree.

This site will show you how to properly trim your toenails with 2 instruments.

Footwear, skin treatment, and special nail concerns are addressed.

The important relationship between diabetes and the foot is explained. How to check your feet for loss of sensation is demonstrated. For some individuals, this is their first sign of diabetes.

The links mentioned provide more in depth information on a wide variety of topics relating to the foot. Much information has been provided on this site. Pick what interests you.

Questions and comments are welcome, inquiries will be answered as soon as possible.

The Amazing Foot

The foot is truly a magnificent structure. Consider the following:

- each foot contains 26 bones
- these bones form 4 arches
- these arches are held together by 112 ligaments

- 20 different muscles activate these ligaments
- the outer layer of skin that surrounds the body is extra thick on the bottom of the feet – up to 5 times thicker than other parts of the body
- there are over 125,000 sweat glands on each foot- that's approximately 3000 per square inch
- there are no oil glands on the sole of the foot – prevents slipping
- there are over 7000 microscopic nerve endings on each foot

We count on our feet every waking minute of the day. Treat them right, inspect them regularly, wash and dry them well, pay attention to their signals. Remember preventive care in the form of proper fitting shoes, regular nail care and seeking assistance when unsure.

'*Expose Your Toes*' and have your health care professional examine your feet each time you go for a check-up.

How to Cut Toenails

Should You Cut?

- Can you see your feet?
- Can you comfortably reach your feet?
- Can you hold and use the scissors?
- Are your feet sensitive to touch? (read about Diabetic Neuropathy in The Diabetic Connection)

If you answered 'yes' to all 4 questions then you should be able to cut your toenails.

If you answered 'no' to any question then you must have someone else cut your toenails.

Paying for Footcare

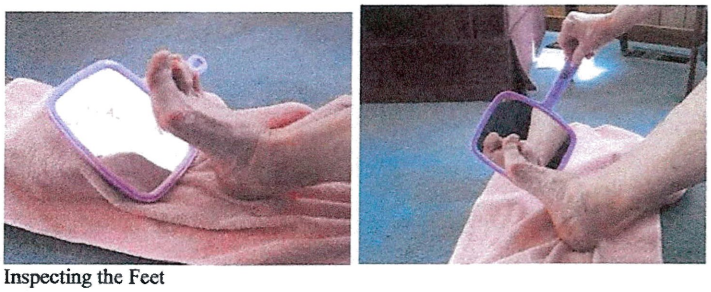
Footcare is an unregulated practice in Ontario. Anyone can claim to be a footcare practitioner. As a consumer purchasing a service, you have the right to ask about training, credentials, how equipment is sterilized, and for references.

Many Registered Nurses (RN) and Registered Practical Nurses (RPN) provide footcare. There are no specific footcare standards set out by the College of Nurses of Ontario. As a member of a regulated professional body, each member incorporates the general standards of nursing into their footcare practice. Footcare nurses have taken additional training from a recognized college.

Chiropodists and Podiatrists are foot care professionals who provide footcare as well as other services, such as fitting of orthotics, toe and nail surgery. They have taken extensive training at the university level in care of the feet. In Ontario, both professions are regulated under the College of Chiropodists of Ontario.

A pedicurist also provides foot care. Here the emphasis is on beautifying the toes and feet. Nails may be cut very short, an unacceptable practice especially for ingrown toenails.

Inspecting The Feet



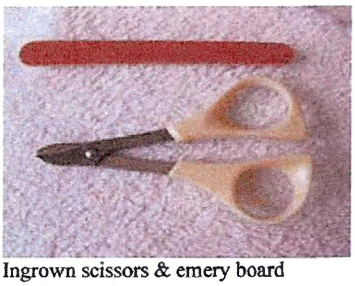
Inspecting the Feet

You should inspect your feet as often as you bathe. If you have difficulty reaching your feet use a mirror to inspect them or ask for help from family or friends.

Inspect the skin on the top and bottom of the foot, look between the toes. Do the toenails look healthy? Any fungus in the nails? Is the skin dry? Flaky? Itchy? How about the skin between the toes? How about the heels? Dry? Cracked? Do you have bunions? Hammer toes? Corns? Callus? Many people experience one or

more foot ailments sometime during their life.

Tools



Ingrown scissors & emery board

There are 2 tools necessary to trim your nails:' ingrow' scissors and an emery board with curved ends.

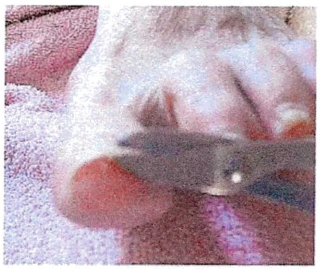
The 'ingrow ' scissors are short, with a curved blade and blunted tip. They are extremely powerful due to their short length and inverted curved blades. I have provided a link
to a Canadian company that sells these scissors. Emery boards are available in various thicknesses and sizes. Do not use pointed emery boards. If the scissors are for more than one person they should be thoroughly cleaned – wash in soapy water then soak in hydrogen peroxide for 20 minutes. Use the emery board +/or pumice stone for one person only. You do not want to spread a fungus!

Cutting the nails

After inspecting the feet, and assuming you are able to see and reach your toes and handle the scissors you are ready to begin.

Position the tip of the scissors around one edge of the nail. Make sure the skin behind the nail is clear of the blade. The curve of the scissors is away from the nail. The nail should be cut even with the top of the toe. Proceed to ' nibble' – take a small cut – 1/8th of an inch into the nail. Continue to take small cuts across the nail until you have reached the other side. Taking small 'nibbles' helps prevent the nail from cracking as it is being cut. You have great control. This is why I prefer 'ingrow' scissors to nail clippers. The clippers remove ½ the nail with one cut but can cause the nail to crack.

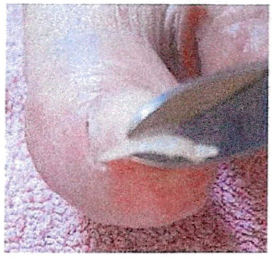
Once you have trimmed all the toenails take the emery board and gently file the edges of each nail. File in one direction. Curve the edges to follow the curve of the toe. File the top of each nail so it is smooth. Do not cut the nail too short.



Nibble 1

Nibble 2

Nibble 3



Nibble 4

Nibble 5

File the Nail

Special Nails

Thick Nails:

These nails can look imposing but can be filed down with the emery board. File over the top of the nail, filing in one direction, checking often to see how much nail you have removed. Often thick nails are caused by fungus.

Fungal Nails

The nail will be discolored as well as thick. Fungus destroys the nail and the nail may break off in little pieces resembling wood chips. A fungal nail is cut differently than a healthy nail. The fungus destroys the area where the nail attaches to the nail bed. It is not attached and as you cut the nail you will expose the skin underneath. I find it best to remove the crumbly nail bits and file the remaining edges smooth. The result may look funny as the nail may be partly gone but you want to remove the fungus to help stop its' progress. As well, if you do not remove the nail where it is detached from the nailbed, this long, detached area may catch in a bed sheet or socks, possibly ripping the nail off.

Fungal Nail

Fungus may be treated in various ways. There are oral medications (prescription required) that you must take over 4 months in an attempt to halt the fungus. These medications are costly and have side effects. There are also creams that you apply directly to the fungal nails. These also must be used over a long period.

A footcare nurse in the Ottawa area experienced great success with the following

Step 1: soak feet for 10 minutes in lukewarm water. Add 1-2 tablespoons of antibacterial soap such as tersaseptic (available in drug stores) to the water

Step 2: dry feet thoroughly, then apply lamisil cream to all toenails, even the nails without fungus.(lamisil cream must be prescribed by your doctor in Canada, it is available over the counter in the USA.)

Step 3: every week file the surface of the fungal nail, removing any loose bits.

Follow these steps every evening for 3-4 months

Whatever you use, there is no guarantee the fungus will not reoccur. It is present on many surfaces. The best prevention is to always wear shoes. Change your socks daily, air out your shoes. Spray inside your shoes with an anti-fungal as the fungus will be active in your shoes, skates and boots - anywhere that is dark and moist. Be patient. Toenails are very slow growing. It may take up to a year for a healthy nail to grow in.

Ingrown Nails

Ingrown toenails are often caused by wearing shoes that are too tight in the toe. High heels are often to blame. They have a narrow toe box plus the height of the heel puts pressure on the already compacted toes. An ingrown nail curls at the edge and this curled edge grows into the skin. If the nail has been cut short, as it grows and curls the edge pushes into the skin that is in the way causing infection. The trick is to keep the nail long, not short. Long, it has already grown past the skin. Trim the nail by taking small cuts and file the edges as with all nails. The curved

edge(s) require special attention. There is often a collection of debris (dead skin) around the curled part of the nail. Soaking the foot in lukewarm water with a spoonful of antibacterial soap for 10 minutes daily will loosen the debris and help keep the area clean.

Ingrown Toenail

Ingrown Toenail - 3rd Toe

An infected ingrown toenail develops when the ingrown nail breaks the skin. This opening allows bacteria to enter causing infection. It will b tender to touch. It may be inflamed and draining fluid. Treatment of an infected in grown toenail requires medical attention. See your health care professional immediately to decrease complications.

Nails may he thick, fungal and ingrown all at the same time. Use common sense before you attempt to cut any nails.

Ingrown Toenail Cut Too Short

Infected, Ingrown Toenail

Skin Concerns

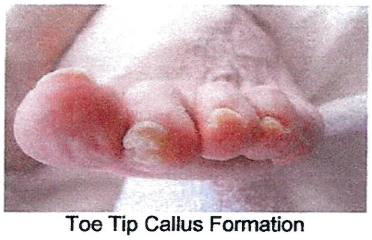
- Corn and Callus
- Bunions
- Athlete's Foot
- Excessive Perspiration

Corn and Callus Formations

Corn and callus formations are areas of thick skin that develop as a result of pressure. Corns have a defined centre whereas callus formation does not. Corns often form on edge of a toe. Callus is found on the sole of the foot often at the base of the toes where the fat pads under the skin have thinned out. Fat pads in the foot thin out as we age. As well the arches lose strength and weaken. Often orthotics will solve the callus problem, supporting and cushioning the affected areas. There are a variety of orthotics on the market, ready made and custom. Custom orthotics cost around $400.00, research your provider before purchasing.

Wearing shoes that are too tight will cause corns to develop wherever the shoe rubs against the foot. If a toe is bent, as with a hammer toe or due to arthritis, it may rub against the top of the shoe causing a corn to develop. Bone deformaties in a toe may cause the toe tip to make contact with the shoe instead of the padded area on the bottom of the toe. This causes callus to form on the tip of the toe. This small callus formation can be extremely painful each time the foot touches down.

Toe Top Corn



Toe Tip Callus Formation

Thick skin may also develop on the heels. The heels can be very dry. Cracks and fissures may develop in the thick skin. In severe cases these fissures may bleed. Excessively dry heels should be softened and thinned.

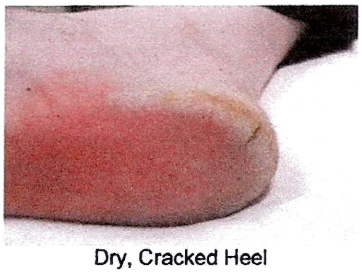
Bathe your feet for 10 minutes each night in lukewarm water with a spoonful of antibacterial soap added. This will soften the skin. Dry very well then gently rub corns and callus and thickened heels with a pumice stone or emery board. This will remove the outer layer of dead cells. If you have diabetes and/or altered sensation in your feet, have someone do this for you. With altered sensation you may remove too much skin and not realize it.

Applying a moisturizer to the feet regularly is your best action to reduce the dryness. Never apply cream between the toes. There are so many products on the market it is difficult to know which one to buy. Read the ingredient label carefully and avoid creams that contain alcohol of any

kind. One nursing remedy is to mix 2 parts vasoline with 1 part zinc. Apply generously to dry heels at bedtime, put on a pair of old socks to save your bedsheets. Do this nightly for 2 weeks. For severe cracks like the one in the picture, apply a cream that contains urea. Uremol 20 is a good choice.

Filing A Callus

Dry, Cracked, Bleeding Heel



Dry, Cracked Heel

File Dry Heel

Diabetics are especially susceptable to dry heels and should use a cream containing urea regularly.

Never apply medicated corn pads. They contain acid that burns away the corn. It can also eat into the healthy tissue causing infection.

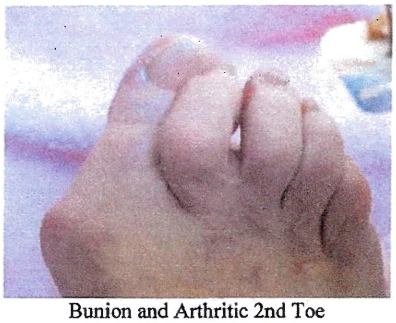
Never soak your feet in hot water, only luke warm, for 10 minutes.

Never attempt 'bathroom surgery' on your feet or toenails. Seek advice and assistance from a registered professional.

Bunion

Bunion formation is a common foot deformity. You cannot inherit a bunion but your internal foot structure will be similar to your parents. Some feet are just more prone to bunion formation. More women than men develop bunions. This is directly related to shoe type. Wearing high heels throughout one's career is almost a guarantee of bunion formation. Years ago bunions were a major concern when shoe styles were limited.

Today, we have some excellent shoe retailers who carry shoes that can accommodate bunion formation. If not, a good shoemaker can stretch a leather shoe in the area of the bunion, or even insert an extra piece of leather. Bunion surgery should be the last consideration.



Bunion and Arthritic 2nd Toe

Athlete's Foot

Athlete's foot is a very common fungal infection. It often presents as itching on the bottom of the feet or between the toes. It may present as a red or white scaly rash. As it progresses the skin becomes soft, sensitive to touch. Wash your feet daily with an antibacterial soap. Make sure you dry very well between your toes. Fungus love dark moist places and between the toes is perfect. Spray or powder your feet with an antifungal product. Change your socks (breathable, cotton) daily or more often if necessary. Consider wearing a different pair of shoes every 2nd day as fungus also lives in your shoes. Spray the inside of your shoes and let them air out for a day. Fungus is present in moist environments. Wearing shoes in public places is a good practice to prevent picking it up. Fungus is very persistent and can lead to infection. See your health care practitioner if it does not clear up within a few weeks.

Excessive Perspiration

There are over 125,000 sweat glands on each foot. Our feet perspire to help maintain normal body temperature. Strenuous physical activity, hormonal changes during puberty and wearing synthetic shoes and socks all contribute to excessive perspiration. Change your socks at least once/day. Have 2 pair of shoes, leave one pair to dry out thoroughly on alternate days. Wash your feet in mild antibacterial soap. Dry very well, especially between the toes. Excessive perspiration on it's own is just a bother. Be aware though, that fungus love moisture and often take advantage of the moist environment on your feet to settle in.

Socks and Shoes

Features of A Good Shoe:

- is made of natural fibers, it is more 'breathable' and will last longer i.e., leather, suede or canvas
- has a roomy toe box, i.e. there is room to wiggle your toes, your toes do not touch the end, roof or sides of the shoe
- has air vents, if not a good shoemaker can put them in
- no seams on the inside that will rub on the toes,
- non skid, flexible, cushioned sole
- laces or Velcro closure
- has room for insole to be inserted, or good built in support

As we age, the ligaments and muscles in our feet loose some tension, the arches sag. These changes cause the foot to widen. Make sure to have your feet measured before you purchase shoes. Purchase shoes in the afternoon as your feet naturally swell and by mid afternoon they will be larger. Wear your regular socks when trying on shoes.

Before purchasing shoes, put your hand inside the shoe. Can you feel any seams, or uneven spots? The inside of the shoe should be as well finished as the outside.
When purchasing shoes trace an outline of your foot onto a piece of paper. Cut it out. Put the cutout on the floor, place a shoe on top. If any part of your foot outline is visible, this shoe is too small.

Before putting your shoes on for the day, reach inside and check for small pebbles or other bits that may have fallen into your shoe. Some pets like to hide treasures in their owner's shoes! This is especially important if you suffer from diabetes and have neuropathy.

Have 2 pair of shoes if you have foot odor, fungus, or sweat excessively. Wear one pair every other day, allowing the 1st pair to air out. Fungus also lives in the shoe, so spray the inside of shoes, skates and boots with an antifungal. Fungus, loves dark moist places.

Socks:

Socks should be made of cotton or wool, without elastic.

Change your socks every day, more often if you perspire excessively.

A flat seam or no seam across the toe is ideal. If there is a seam, turn the sock inside out so the seam does not rub on the toes.

Despite their popularity nylons are not good for your feet. They are synthetic thus not breathable. As well they are slippery and can be very confining for the toes.
Always wear socks in your shoes.

The Diabetic Connection

- How to Test for loss of Sensation

People with diabetes have too much sugar traveling in their blood. Due to a variety of reasons, these sugar molecules cannot enter the cells where they are used as energy. Over time, this large amount of sugar in the blood causes damage to the blood vessel walls. Specifically, the walls of the blood vessels that carry blood from the heart (arteries) can be damaged. All arteries are affected regardless of their size. Damage to the large (macrovascular) sized blood vessels can lead to heart disease, stroke and circulatory problems such as peripheral artery disease.

Peripheral artery disease involves the blood vessels that carry oxygen away from the heart to the legs and feet. The diameter of the blood vessels narrow from plaque buildup and become hard. These changes make it difficult for the blood to flow. Decreased blood flow to the lower legs and feet can cause sudden sharp pain in the legs.

Much more insidious is the damage to the small arteries of the body. Microvascular changes to arterial circulation leads to kidney disease and serious eye damage. Damaged blood vessels are not able to supply enough oxygen and nutrients to the nerve endings throughout the body. The nerve endings become damaged. We hear about erectile dysfunction, but any area of the body that contains nerve endings can be affected: for example; silent heart attack, stomach, bowel and bladder dysfunction.

In each foot there are over 7000 microscopic nerve endings. When these nerve endings become damaged they send improper signals to the brain. Numbness, tingling, and a burning sensation are common complaints of persons with this nerve damage, called 'diabetic neuropathy'. Often the nerve endings do not respond to any stimulation and an individual could be walking around with a tack embedded in the bottom of their foot without their knowledge. Similarly, someone could twist their ankle or even break a bone in their foot without knowing.

Pain is a protective defense of the body. Loss of pain sensation in the feet can lead to severe complications. Diabetic foot ulcers can develop unknown to the person affected until they look at their feet! The problem may have developed from something as simple as the seam of their sock rubbing on their toe top or a stone in their shoe which caused a sore to develop on the bottom of their foot. Left unnoticed the reddened area will develop into an ulcer, could easily become infected, as there is an abundance of sugar in the bloodstream for the bacteria to feed on. Medications as well as oxygen cannot reach the feet as quickly due to the damaged blood vessels in the lower legs. This slows healing. Meanwhile, the infection could spread to the bone, requiring antibiotics over a long period of time. Gangrene and resulting amputation of an extremity usually start off as an ulcer that went undetected for too long.

Diabetes is now a world wide epidemic. Annually, as many people die of diabetes related complication as from HIV/AIDS. The United Nations has taken the unusual step of declaring Nov 14th 2007 the first annual World Diabetes Day in order to draw attention to this insidious disease. Never before has a chronic illness been given such attention.

In many cases diabetes can be prevented and/or well controlled. Healthy lifestyle behaviors such as sensible eating, regular exercise and smoking cessation are activities of choice. Achieving optimal blood pressure and blood sugar levels will have a positive impact on your diabetes and your overall health. Regular glucose monitoring, eye and foot examination, along with education provided by a certified diabetic educator will demystify this disease and the knowledge gained will help you take control.

How to Test For Loss of Sensation

A very important area of care involves examination of the feet on a daily basis. Altered sensation in the feet is sometimes the first indication that an individual has diabetes. Testing how sensitive your feet are is very easy to do now with the development of a low cost, disposable monofilament developed by the LEAP program. Sensitivity can be measured by applying pressure to the sole of the foot using the monofilament.

Monofilaments are included in the bookmarks advertising this site. Use it on your friends and relatives. Clean filament with rubbing alcohol between uses. Have the person being tested look away from their feet. Using the guide, push the filament into the area indicated on the diagram. Apply pressure until the filament bends, as in the illustration below. Remove filament from foot after a few seconds. Repeat on all sites indicated. If the individual cannot tell you where you are touching, they should see their health care provider immediately.

Directions for using the monofilament are taken from the LEAP Program website.
http://hrsa.gov/leap/monofilament.htm

Self Testing Instructions (You may screen your own feet or ask a relative, friend, or neighbor to do it for you)

Step 1

Step 2

1. Hold the filament by the paper handle, as shown in Step1.

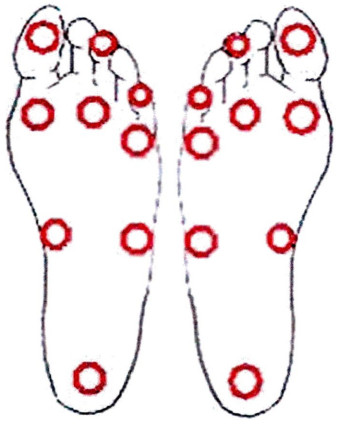
2. Use a smooth motion to touch the filament to the skin on your foot. Touch the filament along the side of and NOT directly on an ulcer, callous, or scar. Touch the filament to your skin for 1-2 seconds. Push hard enough to make the filament bend as shown in step 2.

3. Touch the filament to both of your feet in the sites circled on the drawing below.

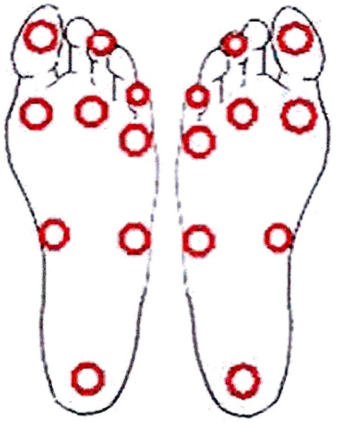
4. Place a (+) in the circle if you can feel the filament at that site and a (-) if y ou cannot feel the filament at that site.

5. The filament is reusable. After use, wipe with an alcohol swab.

Diabetic Foot Screen Test Sites If you have a (-) in any circle, take this form to yo ur health care provider as soon as possible.



Date _____

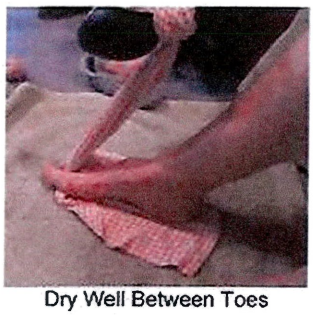


Date_____

http://hrsa.gov/leap/monofilament.htm 01/12/2007

Footcare tips for Everyone

- Inspect your feet daily, especially check between the toes and on the heels. Look for reddened areas, blisters, cuts swelling cracks and toenail concerns. If you cannot see or reach your feet, have someone assist you.
- Wash your feet daily in lukewarm water with a mild soap. Dry well, especially between the toes. If you cannot reach your toes, fasten a thin cloth to the end of a ruler, step on the cloth, feed it through the toes using the ruler to guide it. In this way you will dry between your toes.
- Gently rub corns and callus formation with an emery board or pumice stone to remove dead skin *if sensation is intact*.
- Apply a moisturizer to the feet, everywhere but between the toes. Read the ingredient label. Do not use creams/lotions that contain alcohol. Diabetics should use a cream that contains 20% urea.
- Cut toenails straight across, even with the end of the toe. File the edges using an emery board.
- Inspect the inside of your shoes each day before you put them on.
- Change your socks (preferably cotton) every day
  -wear shoes that fit well.
- Do not go barefoot.
- NEVER attempt 'bathroom surgery' on your feet. do not use pointed instruments on your feet.
- NEVER soak your feet in hot water. Soak in luke warm water for 15 minutes.
- NEVER apply heating pads to your feet.
- NEVER apply 'medicated' footcare products – i.e. corn pads. The medication in the products is acid, and could eat into the healthy skin around your corn
  See your health care provider immediately about any foot concerns.
- When you visit your health care professional for your annual physical remove your socks and shoes and ***Expose Your Toes***. Ask that your feet be examined.



Dry Well Between Toes

Questions & Comments

I welcome your questions and comments. Please contact me at:

Kathleen@ExposeYourToes.ca

Links

If you live in the Niagara region of Ontario, you may be interested in this story

Ruth Rattan - excellent source of training for footcare providers

Canadian Diabetes Association Official Site.

Check out the News Releases: 9/6/2007: 'Access and affordability keys to diabetes crisis in Ontario'

This Canadian site sells the 'ingrow' scissors.

United for Diabetes - go to this site for information about the United Nations Declaration on Diabetes Day; watch their movie 'every 10 seconds'

The World Diabetes Foundation - supports projects in the developing world

The Lower Extremity Amputation Prevention Program
this American government site provides excellent information about sensory testing. You may request free monofilaments from this site.

The International Diabetes Federation

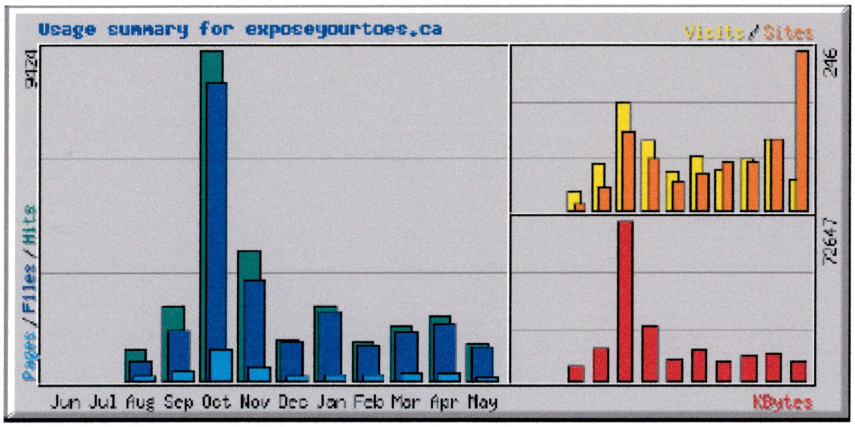
Canadian Health Network

Appendix 'B'
Web site 'bookmark' with monofilament

Appendix 'C'
Web site statistics

Usage Statistics for exposeyourtoes.ca

Summary Period: Last 12 Months
Generated 15-May-2008 18:09 CDT



Summary by Month										
Month	Daily Avg				Monthly Totals					
	Hits	Files	Pages	Visits	Sites	KBytes	Visits	Pages	Files	Hits
May 2008	71	64	5	3	246	8592	46	87	968	1067
Apr 2008	61	52	7	3	108	11993	108	213	1588	1834
Mar 2008	50	44	7	2	73	11636	80	217	1392	1561
Feb 2008	39	36	5	2	74	8322	61	149	1012	1104
Jan 2008	68	63	5	2	57	13498	83	177	1968	2124
Dec 2007	38	35	3	1	43	9049	58	112	1068	1143
Nov 2007	122	94	11	3	78	24802	107	339	2833	3679
Oct 2007	304	274	27	5	118	72647	167	860	8521	9424
Sep 2007	73	48	8	2	34	14255	71	246	1416	2134
Aug 2007	49	30	6	1	8	6373	29	102	522	845
Totals						181167	810	2502	21288	24915

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Appendix 'D'

The St. Vincent Declaration

4.09 Preventing foot complications in diabetes

Reduce the rate of limb amputations for diabetic gangrene by half.

Key facts

- Half lower limb amputations, other than those following trauma, are a consequence of diabetes. In people with diabetes, the risk of amputation is increased 15-fold
- Some risk factors- smoking, high blood pressure, abnormal blood lipids - are reversible. Others, su as diabetic nerve disease and foot deformity, can be detected early and countered effectively.
- Systematic and regular foot care has been shown to reduce the risk of chronic ulceration and amputation in the lower limb by 50% or more.
- Admission for diabetic foot/leg disease is the single largest component of hospital bed usage by people with diabetes. Almost half of all diabetes-related admissions are for lower limb disease.

Priority needs

- Regular, systematic screening of feet and legs for detection of and correction of reversible risk factors.
- Immediate access to qualified foot care for those at high risk.
- Systematic patient education in foot care to reduce chronic ulceration and need for surgery.
- Establishment of multidisciplinary teams, including podiatrist, shoe fitter, nurse surgeon and physician to provide care for those with special needs.

Most health districts in the UK have set up Local Diabetes Service Advisory Groups to try and achieve these aims.

Appendix 'E'

Statistics Canada / Statistique Canada — Canada

Related tables: Diseases and health conditions.

Persons with diabetes by age and sex

(Percentage)

	1994-1995	1996-1997	1998-1999	2000-2001
		%		
All age groups	**3.0**	**3.2**	**3.5**	**4.1**
Male	**3.1**	**3.5**	**3.9**	**4.4**
Female	**3.0**	**2.9**	**3.0**	**3.9**
12-14 years	F	F	F	F
Male	F	F	F	F
Female	F	F	F	F
15-19 years	F	F	F	0.4[E]
Male	F	F	F	0.3[E]
Female	F	F	F	0.4[E]
20-24 years	F	F	F	0.3[E]
Male	F	F	F	0.3[E]
Female	F	0.3[E]	F	0.3[E]
25-34 years	0.6[E]	0.6[E]	F	1.0
Male	F	0.4[E]	F	0.9[E]
Female	0.8[E]	0.9[E]	F	1.1
35-44 years	1.5[E]	1.3	1.6[E]	2.0
Male	1.2[E]	1.2[E]	2.4[E]	2.0
Female	1.8[E]	1.4	0.8[E]	1.9
45-54 years	2.4[E]	3.5	3.4	4.3
Male	2.9[E]	4.0[E]	3.6[E]	4.6
Female	1.9[E]	2.9	3.1[E]	4.0
55-64 years	6.4	7.0	7.0	8.7
Male	6.9	8.5	7.9	10.0
Female	6.0	5.6	6.1	7.3
65-74 years	11.0	9.8	10.9	12.9
Male	12.5	11.2	12.3	14.7
Female	9.8	8.8	9.7	11.3
75 years and over	11.4	11.4	12.3	12.5
Male	13.0[E]	14.6	15.9	14.8
Female	10.4	9.2	9.7	10.9

[E] : use with caution.

Appendix 'F'

Neuropathy Affects Nerves Throughout the Body

Peripheral neuropathy affects

- toes
- feet
- legs
- hands
- arms

Autonomic neuropathy affects

- heart and blood vessels
- digestive system
- urinary tract
- sex organs
- sweat glands
- eyes
- lungs

Proximal neuropathy affects

- thighs
- hips
- buttocks
- legs

Focal neuropathy affects

- eyes
- facial muscles
- ears
- pelvis and lower back
- chest
- abdomen
- thighs
- legs
- feet